DOCUMENT RESUME

ED 302 551 TM 012 452

AUTHOR	Bates, Percy; And Others
TITLE	Teaching Children To Be Test Wise.
INSTITUTION	Michigan Univ., Ann Arbor. School of Education.
SPONS AGENCY	Department of Education, Washington, DC.
PUB DATE	88
NOTE	25p.
PUB TYPE	Collected Works - Serials (022) -- Guides - Non-Classroom Use (055)
JOURNAL CIT	Breakthrough; v15 n1 Sum 1988
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Board of Education Policy; *Educational Opportunities; Educational Policy; Elementary Secondary Education; *Equal Education; *Minority Groups; Newsletters; Problem Solving; State Departments of Education; *Test Coaching; Testing Problems; Test Wiseness
IDENTIFIERS	*Programs for Educational Opportunity

ABSTRACT

Test-wiseness is discussed in the newsletter of Programs for Educational Opportunity (PEO), a combined race, gender, and national origin desegregation assistance center providing technical information to eligible public schools in Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. PEO is based on the belief that specific teaching of test taking skills to help students become more test wise will expand the educational opportunities of all students. After an introduction by Percy Bates, the following papers are provided: (1) "Tribute to Dr. Charles D. Moody, Sr" (Bob Croninger); (2) "An Interview with Irving P. McPhail" (Elizabeth M. Mimms); (3) "What Some States and Districts Are Doing" (Elizabeth M. Mimms); (4) "Test-Wiseness Training: One District's Experience" (Iva A. Smith); (5) "Who Needs To Be Test Wise?" (Bob Croninger); and (6) "A Test-Wiseness Primer" (D. Groves Dugger). Ten services in the area of testing are listed. (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED302551

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Elizabeth M. Mimms
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BREAK through

Programs for Educational Opportunity Newsletter
THE UNIVERSITY OF MICHIGAN SCHOOL OF EDUCATION

Volume XV, Number 1, Summer 1988

Teaching Children to be Test Wise

From the Desk of the Director

Percy Bates

As the new director of the Programs for Educational Opportunity (PEO), it is my privilege to continue the work of my friend and colleague, Chuck Moody. I share his commitment to the possibility and necessity of change, for individuals, for schools, and for our social institutions.

In his 17 years as director, Dr. Moody helped to improve the future of thousands of school children whose life choices might otherwise have been more limited because of their race, gender, or national origin. Bob Croninger's eloquent tribute on the next page expresses the mixture of pride and sadness we all felt when Dr. Moody left PEO and the School of Education to become The University of Michigan's first vice provost for minority affairs.

In the fall 1983 issue of *Breakthrough* Dr. Moody wrote that school districts were asking PEO for technical assistance to help reduce the discrepancy between black and white achievement on standardized tests. Among several ways that PEO has suggested for addressing this problem is specific teaching of test-taking skills to help students become more "test wise." Based on our experience, we believe that if school districts offer such test-wiseness training, it will expand the educational opportunities of all students, no matter what their race, gender, or national origin.

Photo by Janet L. Scales

As yet test-wiseness curriculum materials are not widely used in urban school systems. Predominantly white high schools are more likely to offer their students special courses on how to take tests, and white parents are more likely to invest in private coaching to improve their children's college admission test scores.[1] If special courses and coaching do raise test scores, then all students should have access to them.

(Continued on page 2)

Inside this issue . . .

Tribute to Dr. Moody
Bob Croninger, 3
Dr. McPhail & Test Wiseness
Elizabeth Mimms, 4
State & District Efforts
Elizabeth Mimms, 10
One District's Experience
Iva A. Smith, 13
Who Needs to be Test Wise?
Bob Croninger, 15
A Test-Wiseness Primer
D. Groves Dugger, 18
Additional References
Elizabeth Mimms, 22
Services in Testing
Aurora Ramirez-Krodel, 23

TM 012 452

BEST COPY AVAILABLE

Dr. Percy Bates, Director, Programs for Educational Opportunity

***Percy Bates**, Ph.D., has been director of the Programs for Educational Opportunity since 1987. A psychologist and special educator, he is a professor of education in the University of Michigan School of Education where he has been a faculty member since 1965. He also heads the School's Office of Minority Student Affairs and chairs the Higher Education Commission of the National Association of Black School Educators.*

Prof. Bates has served the School of Education as chairperson of the Special Education Program and of the Division for Curriculum, Teaching, and Psychological Studies and as assistant dean. He has also had a tour of duty as HEW assistant undersecretary for special education in Washington, D.C.

From the Director

(Continued from page 1)

PEO favors test-wiseness training and believes that schools can help students improve their test-taking skills. That is the focus of this issue of *Breakthrough*.

What is test wiseness and can it help minority students improve their test performance? For answers to these questions, Elizabeth Mimms, the the editor of this issue, interviewed Irving P. McPhail, a much sought after consultant in the area of test wiseness. Dr. McPhail believes that not only the test scores but also the self-concept of minority youngsters can be improved. His optimism and excitement are contagious.

How wide spread are test-wiseness programs? Dr. Mimms surveyed state offices and local districts in the Great Lakes area and found that about half were making systematic efforts to implement test-wiseness programs, but that about half were not.

How well do test-wiseness programs work? Iva Smith describes one school district's experience with Dr. McPhail's program and its largely positive results.

Who should be test wise? Bob Croninger's analysis argues persuasively that not only students but also parents, teachers, guidance counselors, principals, district level administrators, and professional test-makers themselves need to be test wise. These adults should be concerned that we assess accurately, constructively, and fairly the abilities of children and be aware of the potential misuse and abuse of testing.

What do researchers say about test-wiseness training? D. Groves Dugger reports that test-wiseness training allows students to cope with increased testing. Furthermore, it helps poorly performing students by bringing them up to speed.

Finally, *where can parents and educators get help?* Besides the references at the end of each article, Dr. Mimms provides some additional resources, and Ms. Aurora Ramirez-Krodel, PEO librarian, provides an annotated list of organizations offering services in the field of testing.

There are other approaches to improving student performance on standardized tests: better curriculum and instruction and challenging the test-makers to eliminate bias from their instruments, to name just two very important approaches. Test-wiseness training seems to work, however, and so with Irving McPhail we at PEO say, "It's time to get on with it."

Reference

1. William F. Brazziel, "Improving SAT Scores: Pros, Cons, Methods," *Journal of Negro Education* 57 (1988): 91.

The University of Michigan, as an Equal Opportunity/Affirmative Action employer, complies with applicable federal and state laws prohibiting discrimination, including Title IX of the Education Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973. It is the policy of The University of Michigan that no person, on the basis of race, sex, color, religion, national origin or ancestry, age, marital status, handicap, or Vietnam-era veteran status, shall be discriminated against in employment, educational programs and activities, or admissions. Inquiries or complaints may be addressed to the University's Director of Affirmative Action, Title IX and Section 504 Compliance, 2012 Fleming Administration Building, Ann Arbor, Michigan 48109-1340. (313) 763-0235.

The Regents of the University: Dean Baker, Paul W. Brown, Neal D. Nielsen, Philip H. Power, Thomas A. Roach, Veronica Latta Smith, Nellie M. Varner, James L. Waters, James J. Duderstadt (ex officio)

Tribute to
Dr. Charles D. Moody, Sr.

Bob Croninger speaking for PEO staff

May 28, 1987

I have been asked by Dr. Moody's staff to present him with a plaque. It is with joy and sorrow that I do so, feelings I know that my colleagues share with me.

We are pleased by Dr. Moody's recent appointment, and we are proud to help honor him here today. For seventeen years he has served as the director of the Program for Educational Opportunity and the Center for Sex Equity in Schools, programs with the primary purpose of furthering equity in the public schools of this country.

During that time he has led with quiet dignity, integrity and a sincere commitment to the aspirations and educational dreams of children. We have been witnesses to his leadership, to his commitment to equity and excellence, and it seems only right that he be honored for it at this time.

Dr. Charles D. Moody, Sr., Vice Provost for Minority Affairs, The University of Michigan

But we have also been friends, and as a friend we will dearly miss him. Over the years we have shared successes and disappointments. We have celebrated together when our efforts have helped children and teachers reach goals they thought unobtainable, and we have consoled each other when our efforts were not enough, when progress came too slowly or not at all for some.

It is with joy and sorrow, therefore, that I make this presentation. Before your family, friends, fellow educators and University colleagues, we gratefully recognize your leadership and friendship. We thank you for the memories you have provided us, and we hope that this plaque will be a reminder to you and a notice to others of the high esteem in which you are held by us. It reads . . .

"In grateful recognition of your friendship and commitment to equity and excellence in public education. From your staff and the more than 170,000 administrators, teachers, students and parents in Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin whom you have inspired by your leadership. Dr. Charles D. Moody, Sr., Director, 1970-1987."

An interview with **Irving P. McPhail** *by Elizabeth M. Mimms*

Irving McPhail *is currently president of LeMoyne-Owen College, Memphis, Tennessee. His previous positions include vice president and dean of academic affairs at Delaware State College, chief operating officer of Baltimore City Public Schools, and special assistant to the director for development and education and research scientist for the Center for Metropolitan Planning and Research at Johns Hopkins University.*

Dr. McPhail holds a bachelor's degree in sociology from Cornell University, a master's degree in reading from Harvard Graduate School of Education, and a doctorate in reading and language arts from the University of Pennsylvania. He has been an active consultant to school districts on the principles of test wiseness. Some of his publications on test wiseness and training for test taking are listed in the references at the end of this interview .

Elizabeth Mimms, *a field services specialist with the Programs for Educational Opportunity since 1980, interviewed Dr. McPhail by telephone on January 14, 1988.*

Mimms: Dr. McPhail, what led to your initial interest in training students in test-taking skills?

McPhail: My initial interest dates back to my days as a doctoral student at the University of Pennsylvania. I went to the University of Pennsylvania in 1973 to pursue a doctorate in reading and language arts, with minors in measurement, evaluation and techniques of experimental research and socio- and psycho-linguistics.

The first course that I took in tests and measurement was taught by Dr. James Diamond. Unbeknownst to me, James Diamond was and is one of the premier researchers in the area of test wiseness. Of course, I did not know this coming into his graduate course, and certainly I was not yet familiar with the literature on test wiseness.

One day in a lecture about item analysis, Jim mentioned that there was a body of literature and some very interesting research that spoke to the issue of test wiseness, namely that there was an art and science of test taking. Once mastered, these principles could improve student performance on standardized tests. He discussed this in the context of error variance, which was one of the things we were talking about in the general discussion of item analysis.

I became somewhat intrigued by what was really a passing comment. Jim didn't even give a lecture on test wiseness; he just happened to mention it in passing. I remember very distinctly at the end of the lecture that I went up to him and said, "You know, I'm kind of interested in the test-wiseness construct that you talked about. Could you suggest some literature?" He said, "Sure, come see me tomorrow."

When I stopped by his office, he gave me about a pound of articles, some of them his work and others the classic work by Millman and his associates. I read that stuff and became hooked. I mean, I became absolutely fascinated. For years I had wondered why it was that Black students did not do as well on standardized tests as did white students. I knew that it had nothing to do with intelligence, and I knew that in some cases it had nothing to do with access to quality education, because even in settings where Blacks and whites at the top of the class were going to school together, there seemed to be this variance. I got excited about this topic because I became committed to the view that the problem that beset many Black students was an absence of this thing that I had just discovered called test wiseness.

From that point on, I set about the task of mastering the knowledge and research in this area, and ultimately I went on to do my doctoral dissertation in the area of test wiseness.[1,2] Jim Diamond served as a member of my committee. It was that doctoral dissertation that led to the publication of my *Test-Wiseness Curriculum.*[3] Of course, the rest is history.

Mimms: Do you differentiate between *test wiseness* and *test-taking skills?* I want to use the terms interchangeably, but I didn't know if you considered them the same.

McPhail: Most people use the terms interchangeably. However, *test wiseness* is the technically appropriate term. Test wiseness is the term coined

by Jason Millman in his original 1965 research report published in *Educational and Psychological Measurement*,[4] but most people do use these terms interchangeably. In fact, there are a number of terms—test wiseness, test awareness, test-taking skills, test sophistication. As long as all of those terms are defined as Millman set down in his classic definition of test wiseness, then there's no problem with using the terms interchangeably.

Mimms: What are the educational advantages—immediate and long term—of teaching test wiseness?

McPhail: The immediate advantages are that young people will be able to learn some strategies and techniques that will help them improve their test scores. This is critically important for Black students because college admissions exams, employment exams, exams for promotion—the whole range of testing in American society—has victimized Black students. I'm not talking about Black students who can't read and write; I'm talking about good Black students.

Objective, multiple-choice kinds of tests are cognitively inappropriate activities for Black students. I'm basing that statement on Barbara Shade's work on African-American cognitive style.[5,6,7] I argue that the format and the structure of a multiple-choice test operates against the preferences for cognition that Barbara Shade and others have written about of late. Our Black students are victimized to a greater degree than any other students by these tests, so the immediate impact and the immediate gain is of course that the students will learn some things that will help them improve their performance. That means they ought to be able to go on and to do many of the things that they want to do more effectively as a result of having succeeded on the test.

In terms of long term benefits there's no question that the teaching of test wiseness has some payoffs in terms of critical thinking and critical problem-solving ability. In my research I've had teachers who have written to me and said that not only did their students improve their test-taking skills, but that their problem-solving abilities have also improved.

Dr. Irving P. McPhail

That's because taking a test is a problem-solving kind of activity. Learning the principles of test wiseness and learning how to apply them is a problem-solving style. I think that there is no question that there are some long term benefits there.

I think there are also some short and long term benefits in terms of student self-concept. Black students feel better about themselves and better about their abilities to succeed as a result. As a student once said to me in my first experiment twelve years ago in Philadelphia, "I finally learned how to beat the man at his own game." I think that there is some very important self-empowerment, if you will, that is a residual benefit of all of this that is very, very important.

Mimms: Would you please comment on arguments you have heard for and against teaching test-taking skills?

McPhail: Well, the biggest argument that you get is that it's somehow cheating, that somehow we're giving through the teaching of test wiseness some kind of advantage that other students don't have. I think that's a rather hilarious argument, but that's the one that I hear most. I think that it's an insult to the student, and I think that we are harming students when we don't prepare them for test taking, particularly Black students and other minority students who are victimized, literally victimized, by the standardized testing industry in America. And so I think that for those people who understand what test wiseness is, that ceases to be a valid argument.

There are some who confuse test wiseness with teaching correct answers to the test before the test is given. That of course is not test wiseness. Test wiseness is a realistic psychometric construct that is based on an outline of six principles. Once people understand what test wiseness is—not what they might fancy it to be, but what it is scientifically—then I think they see that it is a skill akin to using the card catalog in the library or knowing how to use the SQ3R (Survey, Question, Read, Recite, Review) system in reading a textbook chapter. In other words, it is a study skill, and as such it does not involve any cheating at all.

Now, another criticism I've heard is that somehow teaching students to be test wise will invalidate the results of the test. Also I disagree with that argument. The distinguished Dr. Robert Ebel,[8] who along with Millman is one of the giants in the area of testing and measurement, argued back in the 1960s that students who are low in test wiseness are more of a problem

to the validity and reliability of a test than those students who are high in test wiseness. The reason for that is you don't know what that score means with a Black student. You don't know whether that score is an accurate indication of what that student knows or if that score is basically a measurement of the frustration that the student has had with the format of that test and the test-taking situation. By equipping the student with the requisite degree of test wiseness, you open up a greater possibility that the student's performance is going to give you a more accurate reading of what that student actually knows.

Mimms: What do you consider to be essential components of a comprehensive or ideal test-wiseness program?

McPhail: I wrote about that in one of my articles and you need to really check back, but let me see if I can recapture this. I laid it out in about five or six components.[9]

The first component dealt with the socio-political implications of testing Black Americans. That's the beginning of the program. I talked about what tests mean and how tests are being used to victimize the progress of Black Americans. Then in the second component I moved into a detailed analysis of Millman's outline and his test-wiseness principles. Then in the third component I discussed the applied principles of test wiseness. Since I'm a reading specialist, I applied the principles of test wiseness to verbal achievement and aptitude tests. Then I explained a test-wiseness technique I've developed for standardized reading comprehension passages, analogies, etc. In the fourth component I instructed or reviewed the content to be measured by the test. For example, if the test is going to measure algebra, you need to go back and review the basic algebraic rules and equations. If the test is going to be a measure of vocabulary, you need to go back and do some basic vocabulary review. And then the fifth component involves practice under simulated conditions: practice on test-like items under simulated time conditions and other conditions.

Mimms: Please describe the curriculum and instructional materials or programs you think would be most effective for teaching test-taking skills.

McPhail: There is a lot on the market now. My own *Test-Wiseness Curriculum* is perhaps the truest material on the market to the design, the construct, of test wiseness itself. It teaches the principles that are inherent in Millman's outline of test wiseness, provides problems for practice, and evaluates test wiseness by using reading comprehension tests.

There are also other materials on the market that basically provide drill and practice. Probably the best drill and practice material on the market is the *Scoring High* material by Random House,[10] but there's some other good material. For example, the National Association of Secondary School Principals has an SAT preparation package.[11] They also have a verbal workbook, a math workbook, and diskettes that are very, very good in terms of drill and practice and also in terms of review of the content information. There are a couple of other companies that have good material out.

But again, I think that it's necessary to teach test wiseness first, to use the problems for practice, to reinforce those principles of test wiseness, and then to use them for purposes of simulation. One of my concerns about some of the efforts to teach the principles of test wiseness is that people are not really teaching Millman's outline of test-wiseness principles and I think that's problematic.

Mimms: Where have such curriculum, materials or programs been used as far as you know, and what have been the results?

McPhail: They've been used all over the country and the results have been very, very good. I first came out with my workbook in 1978, and I have sold several thousand copies over the last ten years.

As I travel around the country speaking to teachers and educators, I find that everybody knows about *Scoring High*. That Random House material is in lots of schools around the country. I wouldn't want to venture a number, but I would say that thousands of school districts across the country have awakened to the need to teach the principles of test wiseness. The results obviously are very good because I keep getting invited to do my workshops. Everywhere I go people who find out about this get excited about it and do something with it and the results are good.

Mimms: Great! What should the district goals be for such training, and how should such goal attainment be evaluated?

McPhail: I think the district goal should be to make sure that every student is exposed to the principles of test wiseness beginning with preschool. I think the place to start is in the pre-kindergarten and to continue to teach the principles all the way up to twelfth grade. I think the evaluation of it is very simple: Do the scores go up? That's the bottom line. Do you see an increase in scores, and also do you see some of the residuals? Do you see students as better problem solvers, and do they feel better about themselves, about their ability to perform well?

"Do the scores go up? That's the bottom line."

Mimms: Good. What should be the responsibility of each affected group in assuring the success of such a program—groups such as students, parents, teachers?

McPhail: The students' responsibility is to study hard, apply themselves, master the strategies, and apply them. The parents' responsibility should be to make sure that they gain access for their children to this kind of training, to make sure that once they find a good program that they make their children stick to it, and to provide the support at home.

For example, I work with the NAACP to set up testing centers for the SAT. I just met with them down in Norfolk, Virginia. We're going to do the same thing for the NTE. Parents had to sign a contract which basically said, "We promise to make sure that our students study X number of hours to master this material and that they will come to every session." In other words, the parents' responsibility is to make sure that the kids are accountable to the program, and that the program is accountable to the kids.

As far as teachers and school districts are concerned, the bottom line is that they should provide this kind of instruction, particularly in Black school districts. They should be providing this kind of instruction so that Black kids can have the same benefits as the suburban kids do in terms of knowing how to take tests.

Mimms: All right. What about building administrators, the principal for instance.

McPhail: Well, the principal is the educational leader and manager of the school, and that includes leadership for the curriculum. I think the principal should make sure that the principles of test wiseness are well integrated into the curriculum. At the elementary level I would like to see the principles taught by every classroom teacher. At the junior high level I would like to see these principles taught by whoever is the appropriate teacher—the reading teacher or English teacher. Then I'd like to see the content areas focus on applied test wiseness, but I still would like to see the English teacher or the reading teacher focus on didactic instruction in the principles of test wiseness.

At the secondary level I would like to see courses called "Preparation for the SAT" and "Preparation for the ACT" and "Preparation for the PSAT" offered from the seventh grade on. Young people would be able to come to a class that is part of their normal academic schedule and get specific coaching and instruction for the College Boards test. Then they would have the ability to do better on the ACT and SAT which will have a definite impact on where they can go to school or whether or not they'll get a scholarship.

Mimms: What do you think about the role of district administrators responsible for staff development, or testing and evaluation, or counselors and psychologists, or any of those people?

McPhail: I think all of those people are implicated, but I think it's the educators who must assure that this occurs. I define the educators as the teachers, the principals, and the curriculum people.

Mimms: What about the person who is in charge of testing and evaluation in the district?

McPhail: I think that they certainly should have an interest in this. I think they certainly should be supportive of it. They should appreciate the importance of test wiseness, perhaps more than anybody else. But I have to say, in my travels around the country that I haven't seen too many enlightened testing and measurement people in school systems. I've seen people who tend to be conservative and who tend really not to be into this movement to the degree that I would think that they would be.

Mimms: What is the time frame for implementing test-wiseness training? Should it be throughout the school year or through intensive short term training?

McPhail: It should be throughout the school year with intensive short term periods before a particular test that a student is preparing for, and I think you should start when the child first comes to school in pre-kindergarten. That's really where it should start, and it should be sequenced all throughout the child's twelve or thirteen years of public school.

Mimms: What pitfalls are districts or schools likely to experience when implementing a test-wiseness program, and how can such pitfalls be avoided?

McPhail: Staff development, I think, is the major potential pitfall. People have to know what they're doing. I've seen a lot of people doing things in the name of teaching test wiseness as I've traveled around the country which make no sense at all. About the worst thing I've seen is ordering the Random House material, giving it to kids as homework assignments, and saying, "We teach the kids to be test wise." Nonsense!

I think the biggest pitfall is not putting enough time, energy, and

creativity, and thought into your staff development program. The teachers really need to be taught what test wiseness is. They need to be walked through that outline of test-wiseness principles. They need to master it, and then they need to work with really good curriculum people to come up with appropriate vehicles in the curriculum for delivering these ideas to the children and to the students that they're working with. I think that staff development and curriculum instructional development are two areas that have not been approached very carefully and can end up being big, big pitfalls.

Mimms: What variables are associated with coachable students?

McPhail: I would say reading ability that would be no lower than two years below grade level. I would say motivation—a high degree of motivation—and a previous history of average to below-average performance on standardized tests. Those I think would be the most important variables.

Other good candidates would be ambitious, bright, aggressive students who just wish to do better. Test wiseness is really not a remedial technique; it's a technique for everybody. There are a lot of kids making 1300 on the SAT who want to make 1500 to up their chances of getting into Harvard for whom test wiseness would be important also.

Mimms: What are the unique needs of certain subgroups of students, Blacks, other ethnic minorities, women, and other language groups?

McPhail: Blacks in general will need a heavy dose of test wiseness, not because Blacks are not as bright as whites or because Blacks are educationally disadvantaged, or whatever the case might be. I hope those shibboleths are behind us. It's largely

Photo by Janet L. Scales

because, as I indicated earlier, a multiple-choice, objective kind of timed standardized test is a cognitively inappropriate activity for a possessor of African-American cognitive style. I'm convinced of it. Because of that, I think that our young people are really behind the eight ball with a lot of these tests. I think that in terms of uniqueness there just needs to be a lot of attention paid to this.

There's some research that bears this out. There's a very good research report by Messick[12] who is one of the researchers with the Educational Testing Service, believe it or not. Messick did a re-analysis of the Federal Trade Commission data based on that law suit of several years ago. The Federal Trade Commission investigated coaching schools hoping to determine that they were ripping off the public and not doing things that resulted in better test performance, only to discover that people like Stanley Kaplan and others really were doing a good job. In his re-analysis of this Federal Trade Commission data, Messick came upon some truly wonderful findings. In two of the coaching schools that he looked at Black students benefited more from the coaching.

Again, now, just so we're straight on terminology, coaching is not test wiseness. When I use the term coaching, I'm talking about a program that includes test wiseness in combination with some re-teaching, some of it more sophisticated usually, and more intensive drill and practice. Good coaching encompasses test wiseness.

What Messick found is that Black students in two of the coaching centers improved more substantially than did white students who were in the same coaching school. This suggests, of course, that the Black students were lower in test wiseness to begin with, and it also suggests the efficacy of this kind of training for Black students.

Mimms: What about ethnic groups other than Blacks? Have you had any experience or any thoughts regarding them and test wiseness?

McPhail: I work with Blacks and Puerto Ricans because those are the folks that are in New York and Philadelphia. Those are the so-called minorities in the inner cities in the East where I am from. When I worked with Puerto Rican students, I found that basically they have the same problems as Black students plus

the added problem of language difficulty. Depending upon where they are in terms of their acquisition of English, the whole second language issue can be a very difficult one for them.

Fortunately most of the Puerto Rican students with whom I have worked have as much language facility as any other American because they have lived in America all of their lives and somehow they've been able to mesh the Spanish and the English. They basically know what's happening in terms of the English language, and so in that regard their needs become the same as the needs of Black students.

Of course there are certain cultural nuances that are going to come up. There are certain questions on tests that are purely measures of a particular kind of cultural orientation more than they are a measure of some kind of discrete cognitive skill, and so certainly those cultural nuances become doubly difficult for persons who are bringing such a vastly different culture to the testing situation. For the most part, I found that the Hispanic students are able to benefit as much from the test-wiseness training as are the Black students.

Mimms: What directions do you think educators should take in the future with regard to test wiseness and training in test taking?

McPhail: We need a lot more research. I've not been happy with the quality of the research that's been done on the issue of teaching test wiseness to Black students. I've published some good research in the area to which I've gotten some very interesting reactions.[13, 14] As my career has taken off in academic administration, it's been difficult for me to get out there and collect samples and develop materials and do all these great research designs and get all those wonderful "p less than .001" probability values.

I'm kind of disappointed that we don't have some researchers who are looking at this issue and really doing some good research. We need to develop a stronger research base so that we have even stronger evidence that test-wiseness training works. We already know it does. We can look at the kids whom we've been able to help, for whom it has worked, and we can look at my first experiment and the kind of "p" values that I got. Plus we can look at that report that Bangert-Drowns and his associates at The University of Michigan wrote that listed my study among three or four which demonstrated definite benefits of teaching test wiseness to Black students.[15]

> "Our children can learn anything if taught."

I think we need a lot more research. This is where I'm hoping that PEO and all the organizations like yours are going to be able to make a mark. We need a lot more experimental studies in this area. We also probably need some ethnographic studies, too, to begin to look at attitude change and the whole social context of testing for Blacks and Puerto Ricans and other minorities. As we look to the future, that's what I want to see. I want to see a much greater investment in basic and applied research in test wiseness as it impacts on Black students.

Mimms: What concluding thoughts would you like to leave with our readers?

McPhail: Black students can learn anything if taught. The teaching of the principles of test wiseness to Black students is a step in the right direction. There's no reason to believe that literally thousands, millions for that matter, of Blacks do poorly on tests because of poor ability, or deficits, or any of that kind of nonsense. Our children can learn anything if taught.

It's our responsibility to teach them to be test wise at the same time that we're teaching them to read, to use the computer, to learn calculus and do all of the other things that we want them to do. And I think that we need to get on with it!

References

1. Irving P. McPhail, "A Psycholinguistic Approach to Training Urban High School Students in Test-taking Strategies " (Ed.D. diss., University of Pennsylvania, 1976). *Dissertation Abstracts International* 1977, 37: 5667A. (University Microfilms No. 77-4676).

2. Irving P. McPhail, "A Psycholinguistic Approach to Training Urban High School Students in Test-Taking Strategies." *Journal of Negro Education* 47 (1978): 168-76.

3. Irving P. McPhail, *Test-Wiseness Curriculum.* (Randallstown, MD: Kamilah Educational Enterprises, 1978). (To order, write Dr. McPhail at Lemoyne-Owen College, 807 Walker Avenue, Memphis, TN 38126).

4. Jason Millman, Carol H. Bishop, and Robert L. Ebel, "An Analysis of Test Wiseness." *Educational and Psychological Measurements* 25 (1965): 707-26.

5. Barbara J. Shade, "Afro-American Cognitive Style: A Variable in School Success?" *Review of Educational Research,* 52 (1982): 219-244.

(continued on page 10)

6. Barbara J. Shade, "Cognitive Strategies as Determinants of School Achievement." *Psychology in the Schools* 20 (1983): 488-493.

7. Barbara J. Shade, "Is There an Afro-American Cognitive Style?" *Journal of Black Psychology* 13 (1986): 13-16.

8. Robert L. Ebel, *Measuring Educational Achievement*. (Englewood Cliffs, N.J.: Prentice-Hall, 1965).

9. Irving P. McPhail, "Why Teach Test Wiseness?" *Journal of Reading* 25 (1981): 32-38.

10. *Scoring High in Reading*. Four volumes. (New York: Random House, 1978).

11. *Improving College Admission Test Scores*. Math Workbook, 1982; Verbal Workbook, 1983. (Reston, VA: National Association of Secondary School Principals/Instructavision, Inc.).

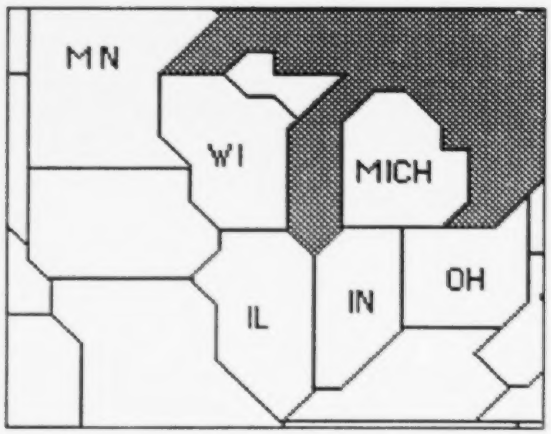
12. Samuel Messick, *The Effectiveness of Coaching for the SAT: Review and Analysis of Research from the Fifties to the Federal Trade Commission*. (Princeton, N.J.: Educational Testing Service, 1980).

13. Irving P. McPhail, "Test Sophistication: An Important Consideration in Judging the Standardized Test Performance of Black Students." *Reading World* 18 (1979): 227-235.

14. McPhail (1981), pp. 32-38.

15. Robert L. Bangert-Drowns, James A. Kulik, and Chen-Lin C. Kulik, "Effects of Coaching Programs on Achievement Test Performance." *Review of Educational Research* 53 (1983): 571-585.

What Some States and Districts are Doing



Elizabeth M. Mimms

To find out what states and districts in PEO's service region were doing to teach test-taking skills to public school students, I conducted an exploratory study during September and October 1987. In 38 brief telephone interviews I first defined test-taking skills to mean the ability to use time well, to pace oneself, to know when to guess and when not to guess, to use logical reasoning, and other factors related to test taking that are independent of the test's content. Then I asked respondents what their agency was doing to train students in test-taking skills and specifically whether they had developed any training materials for this purpose.

Elizabeth Mimms, Ph.D., is originally from Indianapolis, Indiana. She has a background in social work and adult and continuing education. She is a race, gender, national origin field services specialist for the Programs for Educational Opportunity and is its liaison to Wisconsin.

I spoke with administrators and consultants responsible for student testing, evaluation, research, or assessment from six state agencies and 32 local districts in PEO's service area: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. I contacted five or six districts per state which were either in large, urban areas or were suggested by persons I interviewed.

Other people I talked to in the course of my survey included several state EEO (Equal Educational Opportunity) administrators, district level personnel responsible for staff development, counseling and guidance, and curriculum and instruction, as well as a principal, two university professors, two superintendents, and two county intermediate school district officials. Respondents were generous in sharing information, and in sending articles, booklets, workshop agendas and other written materials in response to my telephone inquiries.

State Agencies

The Michigan Department of Education was the only state educational agency to report launching systematic efforts to improve student test-taking skills. The state office that administers the Michigan Educational Assessment Program (MEAP) developed a brochure for district principals, teachers, counselors and other professional staff to use in improving student test-taking skills, entitled *A Guide to Test Taking as Easy as 1 - 2 - 3.*[1]

The state department then refined and broadened the brochure to provide training for all kinds of tests, including teacher made tests. Also, plans were underway to use the brochure as the basis for developing a videotape for training teachers. The efforts in Michigan were frequently praised by administrators from the five other states.

In Illinois,[2] Indiana, and Ohio,[3] administrators said that materials for districts to use for improving student test-taking skills were being planned in conjunction with the development of state-wide testing. Administrators from Michigan and Ohio added that their state departments of education included training for teaching test-taking skills in their yearly offerings of in-service workshops for teachers, counselors and other district personnel throughout the state. Otherwise, systematic efforts to improve student test-taking skills were left to the discretion of local school districts.

Local Districts

Of the 32 local districts I surveyed, 16 reported making system-wide efforts to teach test-taking skills. The other 16 indicated that they left such efforts to the discretion of each school. Administrators for 11 of these 16 districts specifically stated that there was no system-wide effort to train students in test-taking skills in their districts. One reported that a 1985 teacher in-service had indicated a lack of staff interest in training students to be test wise, and two indicated that they, personally, were not in favor of such efforts.

Many districts encouraged teachers to prepare students for standardized tests by regularly discussing test-taking skills and incorporate separate answer sheets and multiple-choice formats in teacher made tests. A number of informants also mentioned commercially prepared materials. Respondents from 12 of the 32 districts reported using such practice materials in their district. These included commercially prepared sample questions supplied by publishers of specific standardized tests including the Iowa Test of Basic Skills and the California Achievement Test. *Scoring High*[4] by Random House was listed by administrators from five districts, and *Mini Tests*[5] by Educational Solutions of New York City was reported by two districts.

Illinois

Urbana school district reported a system-wide program aimed primarily at the elementary level. Teachers received one day of in-service training and then took students through ten lessons that simulated test situations, used practice tests and separate answer sheets, and stressed time usage, pacing, familiarity with routine, checking one's own work, following instructions, self-scoring, and discussion of sample tests. The purpose of this training was to reduce test anxiety and develop a positive student attitude.

The program started as a pilot project at Leal Elementary School, where materials and training were developed by the school's instructional staff and by University of Illinois's Professor Kennedy Hill.[6,7] Prof. Hill's research has shown that students receiving the test preparation program show significant increases in achievement test performance as well as reduction in test anxiety compared to control group classrooms.[8] At this time all of the elementary school teachers in the Urbana schools have been trained in the program as well as all of the teachers in *Evergreen Park*, Illinois, School District.

A *Chicago* administrator reported that some sub-districts have elaborate programs and some do not. She said a study was underway to find out how test preparation materials that instruct students to read a passage before answering reading comprehension questions compares in its effectiveness to materials that direct students to read the questions before reading the passage.

"Students . . . show significant increases in achievement test performance. . ."

Michigan

Detroit has developed a K-12 test taking skills manual entitled *Testing Tune Up*.[9] The school-based testing coordinators and other teachers were trained in the use of the manual, as are new teachers. Requests for this manual have come from districts both inside and outside the United States.

Buena Vista school district near Saginaw has developed a booklet for elementary students on how to take tests. At the junior high level Buena Vista has provided a regular 50-minute course on test taking in its communication skills sequence. At the high school level, ninth graders take a regular 50-

minute, one semester class in test-taking skills.

Grand Rapids school district initiated its efforts by conducting a system-wide survey to see what staff thought they needed in order to impart test-taking skills to students. This school year the district is focusing on raising the awareness of staff regarding test-taking skills and student outcomes. One administrator I talked to there said, "Test taking is a basic skill."

Minnesota

St. Paul recently provided Dr. Irving McPhail's in-service training on test-wiseness curriculum to instructional staff from a number of schools that had participated in the desegregation process.[10] Teachers then used handouts and other materials Dr. McPhail provided to infuse test-wiseness training into their curriculum. In addition, teachers developed test preparation materials for tests which had no practice materials.

Ohio

Cincinnati has published a booklet on test wiseness that compares content-specific and content-free test wiseness. *Cleveland* Public Schools includes sessions on test-taking skills in its yearly group guidance sessions for secondary students. *Toledo* Public Schools developed test-taking skills materials for use with its first through third grade students.

Wisconsin

Milwaukee regularly trains students in test-taking skills, especially at the elementary level. Materials produced by the district and by other sources are periodically provided to the schools. In addition, the curriculum and instruction department in that district brought in Dr. McPhail for a one time in-service for principals and supervisors on infusing test-wiseness training into the curriculum.

College Admission Tests

Many districts also provided preparation for secondary students planning to take college entrance tests such as the Preliminary Scholastic Aptitude Test (PSAT), the Scholastic Aptitude Test (SAT), and the American College Test (ACT). Administrators for five districts reported making self-paced, self-study computer software available, free of charge, to high school students preparing for these exams.

Administrators from four different systems described district-developed training sessions for students preparing for college entrance exams. One district offered a 12-session evening course. Another had a training unit in preparation for the PSAT in all tenth-grade English classes in the district. Two offered optional Saturday workshops in conjunction with their community education department and the Urban League or NAACP, free or at minimal cost to students.

Conclusions

It appears that about half of the state and educational agencies surveyed in our six-state region are making comprehensive efforts to promote the teaching of test-taking skills in the local schools, and about half are not. Because we believe such efforts will improve educational opportunities for students in this region, we encourage all state and local education agencies to institute a comprehensive approach to test wiseness with the necessary policy guidelines and programs to support staff- and student-level training. We agree with our colleague in Grand Rapids that test taking is a basic skill.

References

1. *A Guide to Test Taking as Easy as 1 - 2 - 3* (Lansing, MI: Michigan State Board of Education, Michigan Department of Education, no date).

2. *Assessing Reading in Illinois* (Springfield, IL: Illinois State Board of Education, Department of School Improvement Services, 1987).

3. *Study Skills: A Resource Book* (Columbus, OH: Ohio Department of Education, Division of Inservice Education, 1986).

4. *Scoring High in Reading* (New York: Random House, 1978)

5. *Mini Tests* (New York: Educational Solutions, Inc., 1986).

6. Kennedy T. Hill, *Classroom Curriculum Preparing Students for Testing, Grades 1-8* (Urbana, IL: University of Illinois, Motivation, Testing, and Evaluation, 1988).

7. Kennedy T. Hill, "Debilitating Motivation and Testing: A Major Educational Problem—Possible Solutions and Policy Applications." In R. Ames & C. Ames (Eds.), *Research on Motivation in Education: Student Motivation.* (New York: Academic Press, 1984).

8. Kennedy T. Hill & Allan Wigfield, "Test Anxiety: A Major Educational Problem and What Can Be Done About It," *Elementary School Journal* 85 (1984): 105-126.

9. *Testing Tune Up . . . A Guide to Peak Performance* (Detroit, MI: Detroit Public Schools, Evaluation and Testing Department, 1986).

10. Irving P. McPhail, *Test-Wiseness Curriculum* (Randallstown, MD: Kamilah Educational Enterprises, 1978).

Test-Wiseness Training: One District's Experience

Iva A. Smith

Two and a half years ago administrators of a large urban school district requested PEO's assistance in planning and implementing a test-wiseness program. Irving P. McPhail (interviewed elsewhere in this issue) was the primary consultant for this intervention.

The district personnel wanted a program that would improve student test-taking skills in all academic areas, and they wanted classroom teachers to be able to teach those skills to their students. They decided that their greatest need was in the elementary grades, so a model plan was developed to implement test-wiseness training for teachers from a select number of elementary schools. Eight schools were chosen. Some were magnet schools and others were state-designated effective schools. Once successfully implemented, the program was to be replicated throughout all elementary schools in the district.

The Training

The training consisted of two all-day workshops, one in the fall and the other in the spring. Each workshop included a keynote presentation by the consultant followed by a discussion. The principals from the eight schools and selected teachers and other staff members participated in the training.

In the fall workshop, Dr. McPhail presented his test-wiseness model to district participants and then met separately with teams from each school building. By the end of the workshop each building team had developed a written plan for implementing test-wiseness training at their school. For example, one building team planned to present a half-day workshop to the rest of the staff in their building.

In the spring workshop, participants shared their building plans with one another and reported on the results of their efforts. Then each team met separately with the consultant. Because Dr. McPhail was temporarily unavailable, he recommended another consultant, who was an advocate of his model, to lead this workshop.

After meeting with the consultant, each team developed a building plan for test-wiseness training in the following school year. For example, one team decided to develop additional test-wiseness materials for use in their school. Another team wrote test wiseness into their school effectiveness plan. Each teacher was required to integrate test-wiseness training into their classroom curriculum and to spend fifteen minutes every Wednesday teaching test-wiseness skills.

The Results

The research component of the district worked closely with participating teachers to measure the impact of the test-wiseness program. The district usually administered the Survey of Basic Skills by Science Research Associates (SRA) only once a year, but all eight participating schools tested their third, fourth, and fifth or sixth grade students twice that year. The first test was given in October (prior to the fall test-wiseness workshop) and the second in May (after the spring test-wiseness workshop). In this way each school could compare fall and spring test scores and make some judgments about the effectiveness of the test-wiseness program implemented by their teachers.

In June, each school submitted a comparative report of its fall and spring test scores. Schools whose staff members participated fully in the test-wiseness project reported a significant increase in SRA test scores in all academic areas and grade levels

> "... a significant increase in SRA test scores in all academic areas"

Iva A. Smith, a race, gender, and national origin field services specialist for the Programs for Educational Opportunity, has represented PEO in several public school districts in Illinois, Michigan, and Minnesota.

tested. Where there was not full staff participation, however, this was not the case. For example, only a few gains were reported at the primary level at one school where many faculty were new, first-time teachers who were not involved in the fall test-wiseness workshop.

One school reported that the improvement in test scores was more dramatic for Chapter I students (those in the lower quartile). Another school reported a similar dramatic gain for students in its behavior problem class. The principal of a third school reported the following improvements in the national percentile rank of his students' mean scores on the SRA:

	Grade 2	Grade 3
Fall	28	39
Spring	46	63

The principal of a fourth school, whose students had been scoring far below the national percentile, reported that all students at all grade levels in his school had made significant gains in the major components of the spring test. He presented the figures in the chart below for the national percentile rank of the mean scores of the students at his school.

This same principal reported high student interest in the summer activity packets that his staff had prepared for the students to help them retain and strengthen the test-wiseness skills they had learned: over 200 students had said they would participate in the summer test-wiseness program.

Recommendations

Although the district judged the first year of the test-wiseness training program to be a success, it recommended to PEO and Dr. McPhail that any continuation of the program should:

1. Have additional workshops and consultations by Dr. McPhail, preferably at school building sites where he could observe individual teachers implementing his test-wiseness techniques.

2. Provide training to ensure that gains will continue for previously trained students and to involve new students who enroll in participating buildings.

3. Start new test-wiseness programs in new schools to bring all elementary students up to the level of those currently participating.

4. Track specific students from the fall test to the spring test, regardless of their movement within the district. (Three of the eight selected schools had very transient populations.)

5. Measure whether test-wiseness training improves day-to-day performance on teacher-made quizzes and tests.

6. Conduct a longitudinal study, with a control group if possible, to measure whether improvement continues over more than one school year.

7. Evaluate the results of the test-wiseness intervention for the entire district.

In spite of its success and the recommendations for its improvement, the test-wiseness training program did not continue for a second year. The district wanted to continue the program, but only if Dr. McPhail himself could conduct the workshops and consultations.

Circumstances in the district and changes in Dr. McPhail's obligations and duties prevented scheduling year two of the program. It was both the district's and Dr. McPhail's hope, however, that the test-wiseness training program could continue in the near future because the district had seen that it was, indeed, a program that worked.

One School's National Percentile Ranks on the SRA for Fall and Spring

	Grade 3	Grade 4	Grade 5	Grade 6
Composite				
Fall	36	56	55	40
Spring	56	66	66	50
Reading Total				
Fall	40	56	56	49
Spring	70	66	67	54
Language Total				
Fall	37	56	47	38
Spring	43	61	57	46
Math Total				
Fall	37	49	50	38
Spring	50	65	67	45

Who Needs to be Test Wise?

Bob Croninger

Should students be taught test-wiseness skills? Yes! Some students, not necessarily those who are less capable, are simply poor test-takers. They fail to read directions carefully. They waste time on questions that stump them. They misread contextual clues and use faulty guessing strategies. Many of these students do poorly on tests, not because they are less intelligent but because they are poor test-takers. Test-taking skills, however, can be taught, and when students are taught how to take tests better, they also do better on tests.

If tests are to measure the abilities of students fairly, then students should be taught how to take tests wisely, so that every student has an equal opportunity to do well. No group of students, in other words, should be handicapped by beliefs and behaviors that are not relevant to the content of a test. Tests, after all, are supposed to measure a student's knowledge, not a student's test-taking savvy, nor any other extraneous characteristic for that matter, such as a student's race, gender or nation of origin.

Bob Croninger is a senior research associate for the Programs for Educational Opportunity. During the past ten years he has helped school districts and community groups examine how school policies and practices shape the educational experiences of girls, Black children, and children from ethnic minority families. He has written about at-risk students, sexual harrassment, and the principles of planned change for schools.

Many educators, of course, agree. They argue that students, especially at-risk students, who are most often ill-prepared for testing, should be instructed in how to take tests. They should be advised about preparing for tests, provided examples of different test formats, instructed in different test-taking strategies and even coached on how to use this knowledge when taking specific standardized tests. These educators believe that poor test taking is a formidable obstacle to student success, so they are developing instructional materials that encourage students to be test wise.

Parents of at-risk students are excited by these initiatives. They believe that test wiseness, if properly taught and supported by the schools, will help their children achieve better scores on important standardized tests. For years they have noted how testing discriminates against their children, and they have complained that testing denies their children important educational opportunities and damages self-esteem. Many parents hope that their children will now be given the chance they deserve to do well in school and benefit from their achievement.

But as these initiatives are being implemented, a second question needs to be asked: who else needs to be test wise? Is it sufficient, or is it even fair, to focus all our attention on the test-taking habits of some students? What about the test-making and test-use habits of parents, teachers, guidance counselors, administrators and professional test-makers? To ignore asking about the test wiseness of these people certainly sets students up for failure, because it overlooks the responsibility of those with the most power to influence testing.

If we are not to "blame the victims" of testing, to use William Ryan's now famous phrase, we must insist on a much broader definition of test wiseness. Test wiseness, in its broadest sense, is common sense about testing, common sense not just about taking tests but about making and using tests, too. Test wiseness, in other words, is not simply a set of test-taking strategies; it is also a body of knowledge about how to assess accurately, constructively and fairly the abilities of children. Test wiseness, therefore, should be a characteristic of every aspect of testing.

Do students need to be test wise? Yes! But so, too, do many of the

> "Test wiseness. . . is common sense not just about taking tests but about making and using tests, too."

other people who influence the consequences of testing for students. Test wiseness is not restricted to the test-taking habits of students; it includes all aspects of testing, from the developing of test items, to the selection of tests, to test administration, interpretation, and use. If test wiseness is to have significant benefits for students, especially at-risk students, then educators must address it significantly. The following people, therefore, also need to be test wise.

1. Parents must be test wise about using tests to assure accountability. Parents are pressuring schools to improve their curricula and instructional practices, and they are mandating through local school boards and state legislators that schools be held accountable for the quality of education they provide students. Since the publication of *A Nation At Risk*, there has been a call to "get tough" with education. Many schools have responded by requiring more and more testing of students, including a greater emphasis on using test results to determine everything from promotions to curriculum content.

Public schools need to be held accountable to the parents of children; such accountability has been an important impetus to reform and change during the last quarter of a century. But an excessive emphasis on testing will inhibit learning, encourage invidious comparisons of schools and students, and quite possibly harm those who have traditionally suffered most from testing. Parents have a right to insist on accountability, but they should not base it solely or perhaps even principally on test scores. To do so would oversimplify necessary reforms.

Parents must demonstrate their test wiseness by first accepting their own responsibility for learning, by motivating their children to do well in school, and by supporting their efforts in whatever way possible. Parents must also, however, insist on a broad definition of test wiseness, especially in schools in which testing is a fundamental aspect of the instructional program. They must ask for assurances that students will not bear the burden of increased testing, that administrators, principals, guidance counselors and teachers will accept their responsibility for fair and constructive testing, too.

> "Test wiseness will only make sense to students if they believe that testing is fair . . ."

2. Teachers must be test wise about how test-making and test-taking habits affect test results. Ultimately, teachers have the most direct effect on a student's test-taking habits. They affect those habits by how they make and present tests to students. If teachers approach testing primarily as an instructional tool, providing students with feedback and opportunities to learn from their mistakes, then students are likely to approach testing as an important aspect of their schooling. If, however, testing is an isolated event, one used primarily for sorting or disciplining, test wiseness will not flourish, for students will have little opportunity to develop or use test-wiseness skills successfully.

Indeed, when testing is not used as an instructional tool, it often becomes adversarial, pitting students against students, as well as students against teachers. It intensifies testing anxiety, because the consequences of testing are more serious and irreversible, and it increases the animosity students have toward schooling because they feel unfairly victimized and humiliated by test results. Test wiseness will only make sense to students if they believe that testing is fair, that they will benefit from testing, and that they can reasonably influence test results.

If students are to be test wise, then certainly teachers must demonstrate good judgment about testing. They must make tests that are fair, that cover material students can be expected to know, that present questions clearly and properly and provide adequate time for students to do well. They must also thoroughly review test results with students, pointing out, when possible, test-taking habits that interfere with students doing well, and they must help students adopt test-wiseness strategies and provide students with opportunities to use those strategies to improve their test performance.

3. Guidance counselors need to be test wise about using tests to categorize students, identify special needs or place students in ability groupings. Most of the law suits that have been filed against schools for testing have argued that test results were inappropriately used to deny students educational opportunities. These suits point to the manner in which test results were used to place children in ability groupings, special education classes or label them as intellectually inferior. What has alarmed the plaintiffs most in these cases is the manner in which many students are unable to reverse these labels, even after evidence of test biases and subsequent performances suggest the need to alter the original interpretation of test results.

Because counselors are often responsible for student records, as

well as the use and interpretation of certain diagnostic tests, they have a special responsibility in this regard. They must assure that test results do not become the basis for self-fulfilling prophecies that encourage academic failure or foster restrictive stereotypes. Guidance counselors, therefore, must demonstrate their test wiseness by assuring that test results are not the sole factor used in categorizing and placing students, and where evidence of test bias exists, counselors should assure that test results are not a factor at all.

Minimally, therefore, guidance counselors should pay special attention to the manner in which test results are recorded in students' records and presented to interested others. They should assure that other diagnostic factors, such as anecdotes and observations from classroom teachers, as well as information about potential test biases, are included in the records, especially when this information contradicts or tempers interpretations that may exclude students from opportunities afforded other children. Guidance counselors should also dissuade others from using test results that may be biased against certain groups of students.

4. Principals need to be test wise about effective instruction and using tests to measure achievement. Principals are the instructional leaders of their schools. They set the tone for teaching and learning. As with effective schooling or any other set of desired outcomes, principal support is an important predictor of success. They can establish an atmosphere in which achievement is highly valued and students are motivated to do well on tests. They can set standards for testing, and they can provide opportunities for staff to develop and improve knowledge and skills basic to those standards.

Principals can demonstrate their test wiseness by assuring that students receive the best and most effective instruction possible, instruction that prepares students for the content of tests without inappropriately narrowing the curriculum. In doing so principals acknowledge the school's responsibility for learning, and they place testing in its proper role, as a means to improve learning, not an end to itself. By establishing a positive, well-balanced climate for achievement and testing, principals can do much to encourage the test wiseness of students, parents, teachers and other school personnel.

5. District administrators need to be test wise about the potential misuses and abuse of testing. Many educational reforms launched during recent years have included provisions for increased testing of students. District administrators and school board members are under increased pressure to demonstrate progress, and to do so many are turning to standardized tests and other exams as a way to evaluate programs and assure accountability. Without safeguards, however, students, especially at-risk students, are likely to be victimized by these pressures and testing practices.

As testing becomes a more prominent part of a district's educational program, administrators should acknowledge their responsibility for assuring that test results are properly used. The guidelines and policies that they set should demonstrate their commitment to test wiseness, not just for students but for all school personnel. They should set the tone for testing in the district, clearly stating its proper and improper uses, as well as the safeguards to be established for assuring that student ability is accurately and fairly assessed.

Minimally, administrators need to demonstrate their test wiseness by setting policies that assure the open review of testing practices and results, require careful consideration of potential biases when selecting tests and assign personnel to evaluate the educational effects of testing for students, particularly those most vulnerable to test abuse. Being test wise, in this regard, requires a clear understanding of the limitations of testing technology, of what can be properly accomplished by it and what policies protect students from test misuse and abuse.

6. Finally, **professional test-makers** must be test wise about how their tests affect students and their schooling. Standardized tests have become exceptionally important in the educational life of students. At an early age, say six or seven, most students are given some form of a standardized test. Their performance is then compared to those of other students, and opinions are formed about their actual and potential abilities. During the next ten to fifteen years, they will take more tests, especially those students who compete with others for the most prized educational opportunities. Students who do well will be rewarded with new chances to learn and advance; those who do poorly will not.

Standardized tests are a powerful, if not ubiquitous, aspect of contemporary schooling. They are used widely to assess the strengths and weaknesses of individual students, to identify specific cognitive difficulties, to measure the impact of educational programs, and to select students for competitive rewards and learning opportunities. But where there is widespread use, there is also widespread responsibility, and those who must bear responsibility are those who develop tests and present them as a benign, credible and objective

measurement of educational ability. Indeed, there is probably no group of people better suited to perform this task, for there is no other group that has specific information about test development and potential biases.

Professional test-makers, therefore, must be test wise. They must recognize the dangers that tests pose to students when they are misused, and they must prevent misuses by making the facts about their tests less mysterious, remote and difficult to understand. Test-makers, in other words, must provide students, parents and educators important consumer information. They must warn about the misuses of testing and provide clear, understandable examples of appropriate and inappropriate uses. They must guard against potential biases in test content, noting discrepancies in scores that reflect gender, racial, ethnic or linguistic differences, and they must suggest alternative ways of accurately measuring the abilities of these students.

Standardized tests are a mixed blessing. They provide important educational information about students, information that can be used to benefit or harm children. Obviously, test-makers cannot be held responsible for every misuse or abuse of testing. They cannot guarantee that educators, be they classroom teachers or college professors, will use standardized tests responsibly. They can, however, guarantee that parents, students and educators have the information they need to make responsible, informed decisions about testing. And this they should do. For, ultimately, the misuses and abuse of testing can only be prevented by an informed educational community . . . a test-wise community.

A Test-Wiseness Primer

D. Groves Dugger

In 1987 nearly 1.8 million high school students took either the Educational Testing Service's Scholastic Aptitude Test (SAT), or the American College Testing Program's American College Test (ACT), an increase of approximately seven percent from 1986.[1] National, state, and local education policy makers have expanded the use of competency, achievement, college admissions and other standardized tests. Tests now evaluate not only student performance, but also the performance of their teachers, educational programs and even entire districts.

In response, many educators have begun to implement test-wiseness programs designed to improve their students' test-taking skills. These programs can be relatively inexpensive, require a minimal amount of time, and are considered an ethical means of improving test scores. As evaluation specialist Jarold Zacharius stated, "If you're going to be involved with these tests, it would be stupid not to engage in test-taking instruction."[2]

D. Groves Dugger is a research associate in the assessment component of the Programs for Educational Opportunity. His expertise is general research methodology and data management. He has also contributed articles on male equity and at-risk students.

Millman's Theory of Test Wiseness

The cornerstone theoretical work in test wiseness was done by Millman, Bishop and Ebel in 1965. Millman defined test wiseness as "a subject's capacity to utilize the characteristics and formats of the test and/or the test-taking situation to receive a high score. Test wiseness is logically independent of the examinee's knowledge of the subject matter for which the items are supposedly measures."[3]

According to Millman, test wiseness is divided into two major categories, strategies *independent* of the test constructor:

1) time use
2) error avoidance
3) guessing and
4) deductive reasoning

and strategies *dependent* on the test constructor:

1) intent consideration and
2) test cue using.[4]

Objective and Subjective Tests

It would seem that most test-wiseness strategies are primarily applicable to closed-ended, objective, multiple-choice exams. In fact, Sarnacki, in his review of research, found that scores on many respected standardized tests, such as the California Achievement Test, Metropolitan Achievement Test, Stanford Reading Test and the Iowa Test of Educational Development can be improved by the application of test-wiseness skills.[5]

According to Sarnacki, test-wiseness is not limited to objective tests because time-using and error-avoidance strategies are also applicable to more subjective tests, such as essay examinations. Furthermore, knowledge of the test constructor's intent and idiosyncrasies in test making and grading will help the examinee do better in many testing situations.[6]

Subject Matter

Regardless of the subject matter, test scores can be improved by teaching test-wiseness skills. Sarnacki reports that language, math, word knowledge, science, vocabulary, analogies, correctness of expression, general information, and reading are all sensitive to test-wiseness strategies.[7]

That test-wiseness skills work with any test content was aptly demonstrated by Bajtelsmit in 1975. He used a testing instrument with "content-free" (nonsensical) items, in which the correct answer could only be derived through the application of certain test-wiseness strategies.[8]

Methods and Duration

Test-wiseness strategies have been successfully taught by a variety of methods including supervised study, independent reading, programmed instruction, and mail correspondence courses. All can provide some competency in test-wiseness skills.[9]

Most test-wiseness research suggests that test-wiseness programs need not be long in duration to produce gains. In fact, most instructional lessons used in test-wiseness research studies lasted no longer than one to two hours .[10]

However, it seems that the most significant gains result from five to seven week test-wiseness programs. In Samson's 1985 meta-analysis of 24 research studies, the largest mean effect size occurred when the instructional program lasted between five and seven weeks.[11] Bangert-Drowns, Kulik, and Kulik found similar results in their 1983 meta-analysis of 30 studies.[12] These studies showed that there are realistic limits on the improvement that can be made and diminishing returns with increasing investments of time.[13]

Messick and Jungeblut also observed that improvement in comprehension and reasoning skills, as measured by the SAT, require geometrically increasing amounts of time and effort. This suggests that the time required to achieve average score increases greater than 20 or 30 points on a test similar to the SAT rapidly approaches that of full-time schooling.[14]

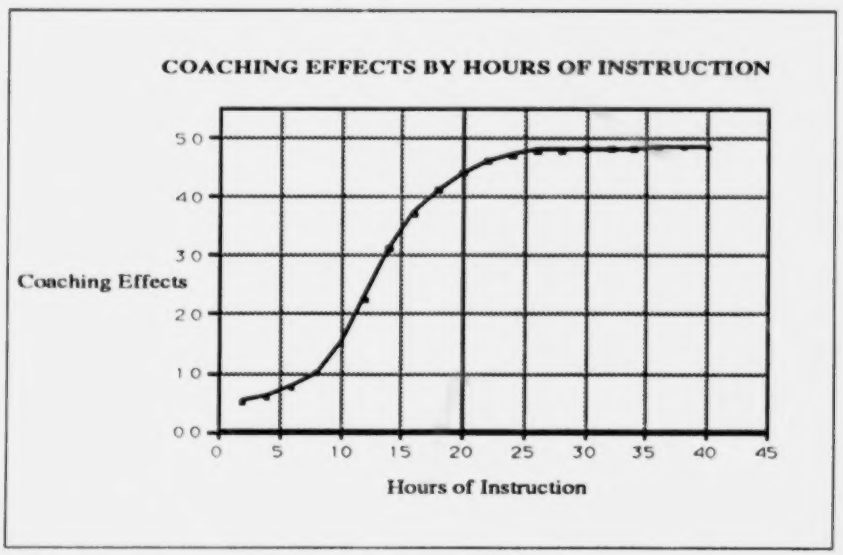
Verbal Achievement

Verbal achievement as measured on the SAT verbal scale was strongly correlated with test-wiseness.[15] This finding was replicated by other researchers who observed strong correlations between verbal ability and test wiseness as measured on the Iowa Basic Skills Battery.[16]

Interestingly, when students with strong verbal and reading skills were compared to students with less developed verbal and reading skills, they did not exhibit as dramatic improvements in scoring. Participants with strong skills had less room to improve, while participants at lower verbal skill levels attained skills that were already part of the better students' cognitive arsenal.

Age and Grade

Age and grade have also been examined as potential correlates of test wiseness. Researchers have discovered that as student grade level increases so does performance on test-wiseness scales. This relationship between grade and performance on test-wiseness scales begins to diminish during the high school years, however, leading many researchers to propose that at a certain point in a student's educational experience, particularly the high school years, the school cohort becomes relatively homogeneous in test-wiseness due to maturation,



experience and a general desire to achieve.[17] Others suggest that as the age or grade of the student increases, deductive reasoning skills become more developed.[18]

Lastly, other researchers have suggested that exposure to numerous tests and test formats, which is a fundamental test-wiseness concept, is directly correlated with experience and age.[19] Although many researchers have concluded that the acquisition of test-wiseness skills may be most useful for certain age groups or developmental periods, test-wiseness skills benefit people of all age groups.[20]

SES and Race

Researchers have found that low socio-economic status (SES) students in urban school settings are particularly receptive to acquiring test-wiseness skills and these students tend to be members of minority groups. The ability to acquire test-wiseness skills, however, is not related to race but to other factors previously discussed, such as verbal and reading skill. Because urban schools generally have larger student populations with moderate verbal and reading skills, students in these schools fit the most coachable student profile.[21]

Anxiety and Motivation

The two most prominent variables demonstrated to be negatively correlated with test-wiseness are test anxiety and testee motivation. Test anxiety and motivation play critical roles in the examinee's test performance and are the greatest sources of variance in all exam situations and test-wiseness research.[22]

Some research has suggested that Black students tested by Black proctors receive higher test scores than Black students tested by white proctors. Perhaps Black students tested by Black proctors experience less stress and anxiety. The "psychological state" of the examinee plays an integral role in test performance.[23]

According to Hill, debilitating test anxiety and other factors (including inherent test biases and differential test-taking skills) may cause standardized tests to measure students' testing skills rather than their ability, knowledge, or the effectiveness of their educational programs.[24]

Durability and Broad Based Applicability

Although most researchers believe that test-wiseness skills can be taught to a broad spectrum of ages, most also agree that reinforcement of test-wiseness skills is essential to ensure the durability of these skills. One study of adults discovered that test-wiseness skills developed after years of testing declined with the passage of time, and that skills acquired through years of test-taking, across all academic levels, dissipated with years of non-testing, resulting in the inability to test well later in life.[25]

Although all test-wiseness programs may not be applicable to other tasks outside of test-taking, some researchers believe that test-wiseness programs designed to provide broad based cognitive skill development are applicable to other tasks. Deductive reasoning and item cue strategies focus on the examinee, and these strategies can be useful outside of the testing situation. They emphasize alternative means of reasoning and thinking which broaden cognitive abilities by providing new means of processing information efficiently and accurately.

Research suggests that the global utility of test-wiseness skills is important and should be formally addressed. Broad based cognitive test-wiseness skills assist in training individuals to think and reason in an integrated fashion. Messick probably states the importance of broad-based test-wiseness training most eloquently: "The most rational means to prepare a student for standardized tests would be to develop a secondary school curriculum which emphasizes the development of thought as well as knowledge."[26]

Test Validity

In sum, test-wiseness training can ensure greater homogeneity of the test-wiseness trait among test takers. If students know how to take the test, then their performance will be based on what the test was supposed to measure, increasing test validity.

Jongsma states that "virtually all authorities in educational measurement recognize test wiseness as a source of variance on educational tests. Most would also agree that variance due to test wiseness is undesirable in that it reduces the validity of the test."[27]

The implementation of a broad based test-wiseness skill development program is not a panacea. The teaching of test-wiseness skills will rarely produce dramatic, significant increases in student test performance. Test wiseness will, however, provide another level of expertise that will reduce a student's test anxiety, improve inductive and deductive reasoning skills, and broaden his or her cognitive abilities.

Most importantly, the implementation of a broad based test-wiseness skill development program will equalize the testing skills of students. This will subsequently provide more accurate assessments of student ability, student knowledge, and curriculum and program effectiveness to students, administrators, and policy makers.

References

1. "Black Students' Standard Test Scores Up Sharply Again," *Ann Arbor News*, September 22, 1987, p. C3.

2. Gregg W. Downey, "Is It Time We Started Teaching Children *How* to Take Tests?" *American School Board Journal*, 164 (1977): 27.

3. Jason Millman, Carol H. Bishop, & Robert L. Ebel, "An Analysis of Test-wiseness," *Educational and Psychological Measurement*, 25 (1965): 710.

4. Millman et al., p. 712.

5. Randolph E. Sarnacki, "An Examination of Test-wiseness in the Cognitive Test Domain," *Review of Educational Research*, 49 (1979): 265.

6. Sarnacki, p. 252.

7. Sarnacki, p. 265.

8. J. W. Bajtelsmit, "The Efficacy of Test-wiseness and Systematic Desensitization Programs for Increasing Test-taking Skills," a paper presented at the annual meeting of the National Council on Measurement in Education, Washington, D.C., 1975, as cited by Sarnacki, p. 265.

9. Sarnacki, p. 275.

10. Phil Jones & Glynn Ligon, *Preparing Students for Standardized Tests: A Literature Review*, (Austin, TX: Texas Office of Research and Evaluation, 1981) as cited by JoAnn M. Prell & Paul A. Prell, "Improving Test Scores — Teaching Test-wiseness: A Review of the Literature," *Research Bulletin*, (Bloomington, IN: Phi Delta Kappa, Center on Evaluation, Development, and Research, November 1986).

11. Gordon E. Samson, "Effects of Training in Test Taking Skills on Achievement Test Performance," *The Journal of Educational Research*, 78 (1985): 263.

12. Robert L. Bangert-Drowns, James A. Kulik, & Chen-Lin C. Kulik, "Effects of Coaching Programs on Achievement Test Performance," *Review of Educational Research*, Winter, 53 (1983): 579.

13. Bangert-Drowns et al., p. 582.

14. Samuel Messick & Ann Jungeblut, "Time and Method in Coaching for the SAT," *Psychological Bulletin*, 89 (1981): 191-216.

15. J. W. Bajtelsmit, "Development and Validation of an Adult Measure of Secondary Cue-using Strategies on Objective Examinations: The Test of Obscure Knowledge (TOOK)," a paper presented at the annual meeting of the Northeastern Educational Research Association, Ellenville, New York, October 1975, as cited by Sarnacki, p. 269.

16. James J. Diamond & William J. Evans, "An Investigation of the Cognitive Correlates of Test-wiseness," *Journal of Educational Measurement*, 9 (1972): 145-150.

17. Malcolm J. Slakter, Roger A. Koehler, & Sandra H. Hampton, "Grade Level, Sex, and Selected Aspects of Test-wiseness," *Journal of Educational Measurement*, 7 (1970): 119-122.

18. Slakter et al., p.121.

19. L. H. Kreit, "The Effects of Test-taking Practice on Pupil Test Performance," *American Educational Research Journal*, 5 (1968): 616-625.

20. Sarnacki, p. 264.

21. M. Dillard, J. Warrior-Benjamin, & D. W. Perrin, "Efficacy of Test-wiseness on Test Anxiety and Reading Achievement among Black Youth," *Psychological Reports*, 41 (1977): 1135-1140.

22. Kennedy T. Hill, "Debilitating Motivation and Testing: A Major Educational Problem, Possible Solutions and Policy Applications," in R. Ames & C. Ames (Eds.), *Research on Motivation in Education: Student Motivation*, Vol. I (New York: Academic Press, Inc., 1984), p. 270-271.

23. Peter Watson, "I.Q.: The Racial Gap," *Psychology Today*, 6 (1972): 48-50,97,99.

24. Hill, pp. 270-271.

25. K. K. Woodley, "Test-wiseness: A Cognitive Function?" a paper presented at the annual meeting of the National Council on Measurement in Education, Washington, D.C., April 1975, cited in Sarnacki, p. 264.

26. Messick & Jungeblut, pp. 215-216.

27. Eugene Jongsma & Elaine Warshauer, *The Effects of Instruction in Test Taking Skills upon Student Performance on Standardized Achievement Tests* (New Orleans, LA: Louisiana Department of Elementary and Secondary Education, 1975), p. 20. ERIC Document Reproduction Service ED 114 408.

Additional References

Elizabeth M. Mimms

Anastasi, Anne. "Coaching, Test Sophistication, and Developed Abilities," *American Psychologist*, 36 (1981): 1086-1093.

Callenbach, Carl. "The Effects of Instruction and Practice in Content-Independent Test-Taking Techniques Upon the Standardized Reading Test Scores of Selected Second Grade Students," *Journal of Educational Measurement*, 10 (1973): 25-30.

Colligan, Louise. *Scholastic's A+ Guide to Taking Tests*. New York: Scholastic, Inc., 1982.

Conlan, Gertrude. "Reading Better Will Help You Prepare for the SAT," *College Prep: Counseling Students for Higher Education*, second edition. Princeton, NJ: College Entrance Examination Board, 1987.

Dobbins, John E. *How to Take a Test*. Monterey, CA: CTB/McGraw Hill, 1984.

Ford, Valerie. *Everything You Wanted to Know About Test-Wiseness*. Washington, D.C.: U.S. Department of Health, Education and Welfare, Superintendent of Documents, Government Printing Office, 1973. ERIC Document Reproduction Service, ED 093 912.

Gilbert, Sara. *How to Take Tests*. New York: William Morrow and Company,1983.

Gruber, Gary R. *Inside Strategies for the S.A.T.* New York: Educational Design, Inc., 1982.

Guidelines on the Uses of College Board Test Scores and Related Data. Princeton, NJ: College Entrance Examination Board, 1988.

Kesselman-Turkel, Judi and Peterson, Franklynn. *Test-Taking Strategies*. Chicago: Contemporary Books, Inc., 1981.

Millman, Jason and Pauk, Walter. *How to Take Tests*. New York: McGraw-Hill Book Company, 1969.

Oakland, Thomas. "The Effects of Test-Wiseness Materials on Standardized Test Performance of Preschool Disadvantaged Children," *The Journal of School Psychology*, 10 (1972): 355-360.

A Parent's Guide to Standardized Aptitude and Achievement Testing. Arlington, VA: National School Public Relations Association, 1978.

Preparing for the ACT Assessment. Iowa City, IA: American College Testing Program, 1985.

Shuller, Stephen M. *A Large Scale Assessment of an Instructional Program to Improve Test-Wiseness in Elementary School Students*. New York: Educational Solutions, Inc., 1979. ERIC Document Reproduction Service ED 189 143.

Student Bulletin: 1987 PSAT/NMSQT. Princeton, NJ: College Board and National Merit Scholarship Corporation, 1987.

Taking the SAT: The Official Guide to the Scholastic Aptitude Test and Test of Standard Written English. 1986-87 revised edition. Princeton, NJ: The College Entrance Examination Board, 1986.

Teaching Students to be Testwise: A Handbook for Teachers Who Administer or Construct Tests. Grades K-12. Rockville, MD: Montgomery County Public Schools, 1982.

Testing Handbook 1985-1986: A Resource for Planning and Implementing School Testing Programs. Pontiac, MI: Oakland Schools Department of Measurement and Guidance, 1986.

Services in the Area of Testing

Aurora Ramirez-Krodel, PEO librarian

American College Testing (ACT) Program
Box 168
Iowa City, Iowa 52243
(319) 337-1000
Provides guidance oriented assessment and research programs for students, secondary schools, universities, vocational-technical institutes, and scholarship agencies. The ACT Assessment Program, which consists of a profile questionnaire, interest inventory, and four 30-50 minute tests in English, mathematics, social studies, and natural sciences, is used by approximately one million students annually. ACT also provides resident and contract services to educational institutions, organizations, and agencies.

Association for Measurement and Evaluation in Counseling and Development (AMECD)
5999 Stevenson Division
Alexandria, VA 22304
(703) 823-9800
A division of the American Association for Counseling and Development (AACD) for people who plan, administer, and conduct testing programs, provide test scoring services, interpret and use test results, and develop evaluation instruments. The division identifies problems in the use of evaluation tools, promotes research concerning these problems, disseminates research results, and provides a forum for exchange of concerns.

Boston University
School of Education
Center for Assessment & Design of Learning
605 Commonwealth Avenue
Boston, MA 02215
(617) 353-2699
Concerned with educational assessment and the prescriptive planning process; assesses students with an individually planned, research-based battery of reading and language tests and selected cognitive and affective measures. Conducts follow-up studies of clients served and evaluates the assessment and prescriptive process.

Educational Records Bureau (ERB)
Bardwell Hall
37 Cameron Street
Wellesley, MA 02181
(617) 235-8920
Provides measurement services and research to member schools, helping them obtain reliable and comparable measurements of the abilities and academic achievements of their students. Plans organized testing programs, scores tests, reports results to schools, prepares normative data, maintains cumulative records of scores, conducts research on test results, publishes research reports on testing and assists schools in using test results in instruction and guidance. Evaluates school testing programs and provides in-service training of staff. Serves as an independent evaluation agency.

Educational Testing Service (ETS) Midwest
One American Plaza
Evanston, IL 60201
(312) 869-7700
Develops and administers tests, conducts research on all aspects of testing and test use, and develops test preparation aids.

ERIC Clearinghouse on Tests, Measurement and Evaluation
Educational Testing Service
Rosedale Road
Princeton, New Jersey 08541
(609) 734-5176
Archives information on tests and other measurement devices; methodology of measurement and evaluation; application of tests, measurement, or evaluation in educational projects or programs; research design and methodology; and learning theory in general.

FairTest
National Center for Fair and Open Testing
Box 1272
Harvard Square Station
Cambridge, MA 02238
(617) 864-4810
Research and advocacy organization dedicated to ensuring that the 40 million standardized test administered annually to America's students and job applicants are fair, open, and educationally sound.

National Assessment of Educational Progress (NAEP)
CN 6710
Princeton, NJ 08541
(609) 734-1624
A program of Office of Educational Research and Improvement (OERI), U.S. Dept. of Education, under a grant to ETS. Provides census-like data on educational levels. Conducts national assessments in major learning areas. Reports results to public and educational decision makers.

National Council on Measurement in Education (NCME)
1230 17th Street, N.W.
Washington, D.C. 20036
(202) 223-9318
Test publishers, educational measurement specialists, and educators interested in measurement of human abilities, personality characteristics and educational achievement and in procedures appropriate for the interpretation and use of such measures.

Western Michigan University Evaluation Center
Ellsworth Hall 401 B
Kalamazoo, MI 49008
(616) 383-8166
Conducts program evaluations, develops tests and other measurement instruments, and conducts studies in the areas of decision making, information usage, and organizational patterns. Evaluates government and school district programs and develops and tests evaluation theories and standards.

Sources
Encyclopedia of Associations. 6th ed. Margaret Fisk, editor. Detroit: Gale Research Co., 1988.

Research Centers Directory. Detroit: Gale Research Co., 1988.

Programs for Educational Opportunity (PEO) is a combined race, gender, and national origin desegregation assistance center funded by the U. S. Department of Education under Title IV of the 1964 Civil Rights Act. PEO provides technical assistance without charge to eligible public school districts in the states of Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin to develop programs that promote equity and remove discriminatory practices. Please write or call us at the address or telephone given below if you would like to know more about our services.

Breakthrough is a periodic publication of PEO highlighting educational issues and effective approaches for enhancing equity and excellence through planned change. Its contents do not necessarily reflect the position or policy of the Department of Education and no endorsement should be inferred.

This issue of Breakthrough was prepared by:
Director: Percy Bates
Editor: Elizabeth M. Mimms
Editorial Consultant & Designer: Ted Wilson
Word Processor: Jacqueline Blake
Photographs: Janet L. Scales, pp. 1 & 8; Al Roberts, p. 2; Bob Kalmbach, UM News & Information Services, p. 3; UM Photo and Campus Services, pp. 10, 15 & 18

Do we have your correct address?

____ change ____ delete ____ add

_____
(name and title)

_____
(organization)

_____
(street address)

_____
(city and zip code)

Please send to: Breakthrough Mailing List
Programs for Educational Opportunity
1033 School of Educaiton
The University of Michigan
Ann Arbor, MI 48109-1259

BREAK through

Programs for Educational Opportunity
School of Education
The University of Michigan
Ann Arbor, Michigan 48109-1259
Telephone: (313) 763-9910

NON-PROFIT ORGANIZATION
U.S. POSTAGE PAID
ANN ARBOR, MICHIGAN
PERMIT NO. 144

DIRECTOR
SOCIAL STUDIES DEV. CTR.
~~513 N. PARK AVE.~~ Smith Ponca
BLOOMINGTON IN 47401

Address Correction Requested